

CLAIMS:

1. A method of welding comprising the steps of:
during welding, identifying a transition between a
5 first mode of operation during which no spatter is
produced, and a second mode of operation during which a
minimal amount of spatter is produced; and
adjusting a power supply voltage whereby welding
occurs under conditions associated with said transition;
10 whereby
said step of identifying said transition comprises
identifying near zero voltage fluctuations in said power
supply voltage.
- 15 2. The method as claimed in claim 1 further comprising
automatically adjusting said power supply voltage.
3. The method as claimed in any one of claims 1 or
claim 2 further comprising continually adjusting said
20 power supply voltage.
4. The method as claimed in any one of claims 1 to 3
further comprising performing a whole welding process
under said conditions.
- 25 5. The method as claimed in any one of claims 1 to 4
further comprising the steps of;
monitoring near zero power supply voltage signals
during welding; and
30 determining when an onset of near zero voltage
fluctuations occurs said onset indicating a transition
from said first to said second mode of operation.

6. The method as claimed in any one of claims 1 to 5 comprising a method of pulsed metal inert gas (MIG) welding.

5 7. A method of welding comprising the steps of:
during a welding process, identifying near zero voltage fluctuations in a power supply voltage; and
responsive to the detection of said fluctuations adjusting said power supply voltage.

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8. The method as claimed in claim 7 further comprising automatically adjusting said power supply voltage.

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9. The method as claimed in claim 7 or claim 8 further comprising continually adjusting said power supply voltage.

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10. The method as claimed in any one of claims 7 to 9 further comprising:

during welding adjusting power supply voltage responsive to variations in weld set up conditions.

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11. The method as claimed in any one of claims 7 to 10 comprising a method of pulsed metal inert gas (MIG) welding.

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12. Welding apparatus for providing predetermined weld conditions during a welding process comprising:

a main electrode for forming molten metal and an arc
between the electrode and a work target;
a power supply arranged to supply a power supply voltage to said electrode;

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means for identifying a transition, during welding, between a first mode of operation and a second mode of operation; and

means for adjusting the power supply voltage whereby welding occurs under conditions associated with said transition; wherein said means for identifying a transition comprises means for identifying near zero
5 voltage fluctuations in the power supply.

13. Apparatus constructed and arranged substantially as hereinbefore described with reference to the accompanying drawings.

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14. A method substantially as hereinbefore described with reference to the accompanying drawings.

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